3. PANORAMIC NIGHT VISION GOGGLES

In the mid 1990s, a new and unique NVG design was conceived at AFRL/HEC, Wright-Patterson AFB, Ohio. A small business innovative research (SBIR) program developed wide field-of-view panoramic night vision goggles (PNVGs) using four image intensifier tubes instead of two. Results of previous surveys of aircrew members showed that the top two requested improvements were (1) increased field of view (FOV), closely followed by (2) improved resolution. However, these two parameters are closely and inversely related (see Section 1, Donohue-Perry, et al., 1994). Prior to this innovation, if one wanted a wider field of view, one had to settle for lower resolution. All of the articles in the present section describe various aspects of the development of these PNVGs and some unique issues that arise because of the optical design requirements

These articles are reprinted to provide the reader with a reference and background to better understand PNVGs.

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Craig, J. L., & Geiselman, E. E. (1998). **Further development of the panoramic night vision goggle.** *Proceedings of the 36th Annual Symposium SAFE Association* (pp. 26-30).

Craig, J. L. (2000). **Integrated panoramic night vision goggle.** *Proceedings of the 38th Annual Symposium SAFE Association,* http://www.safeassociation.com

Franck, D. L., Geiselman, E. E., & Craig, J. L. (2000). **Panoramic night vision goggle flight test results.** *Proceedings of SPIE – The International Society for Optical Engineering Helmet- and Head-Mounted Displays V, USA, 4021,* 146-154.

Jackson, T. W., & Craig, J. L. (1999). **Design, development, fabrication, and safety-of-flight testing of a panoramic night vision goggle.** *Proceedings of SPIE – The International Society for Optical Engineering Helmet- and Head-Mounted Displays IV, USA, 3689,* 98-109.

Marasco, P. L., & Task, H. L. (2000). **Panoramic night vision goggle testing for diagnosis and repair.** *Proceedings of the 38th Annual Symposium SAFE Association,* http://www.safeassociation.com

Sedillo, M. R. (1999). **Panoramic night vision goggle-maintainer's perspective.** *Proceedings of the 37th Annual Symposium SAFE Association,* http://www.safeassociation.com

Task, H. L. (2000). **Integrated panoramic night vision goggles fixed-focus eyepieces: selecting a diopter setting.** *Proceedings of the 38th SAFE Association,* http://www.safeassociation.com

Angel, S. P. (2001). **NVG eyepiece focus (diopter) study.** *Proceedings of SPIE - The International Society for Optical Engineering, Helmet- and Head-Mounted Displays VI, USA, 4361,* 138-147.